Maine's Grade Level Expectations - Mathematics

as Measured on the Maine Educational Assessment and the Personalized Alternate Assessment Portfolio

Content Area/Content Standard	MEA Grade Level Expectation	Personalized Alternate Assessment Portfolio (PAAP) Rubrics
Mathematics/A Numbers and Number Sense A3, A3	**Grade 3** Student can demonstrate understanding of the meaning of decimals through hundredths in money contexts only.	**Rubric Level 2, Level of Complexity 3** Student can demonstrate understanding of the meaning of decimals through hundredths in money contexts only.
	Grade 4 Student can demonstrate knowledge of the meaning of decimals and integers and an understanding of how they may be used.	**Rubric Level 2, Level of Complexity 4** Student can demonstrate knowledge of the meaning of decimals and integers and an understanding of how they may be used.
	Grade 5 Student can use divisibility rules for 2, 5, and 10.	**Rubric Level 3, Level of Complexity 1** Student can use divisibility rules for 2, 5, and 10.
	Grade 6 Student can recognize and apply concepts of prime and composite numbers and use divisibility rules for 2, 3, 4, 5, 6, 9, and 10; and recognize and find factors and multiples of natural numbers.	**Rubric Level 3, Level of Complexity 2** Student can recognize and apply concepts of prime and composite numbers and use divisibility rules for 2, 3, 4, 5, 6, 9, and 10; and recognize and find factors and multiples of natural numbers.
	Grade 7 Student can apply concepts of ratios in practical or other mathematical situations.	**Rubric Level 3, Level of Complexity 3** Student can apply concepts of ratios in practical or other mathematical situations.
	Grade 8 Student can apply concepts of ratios, proportions, percents, and number theory (e.g., primes, factors, and multiples) in practical and other mathematical situations.	**Rubric Level 3, Level of Complexity 4** Student can apply concepts of ratios, proportions, percents, and number theory (e.g., primes, factors, and multiples) in practical and other mathematical situations.

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Mathematics/A Numbers and Number Sense A1, A1	**Grade 3** Student can read, write, model, and compare whole numbers using >, <, and =, order numbers up to 9999, and classify numbers up to 9999 as odd and even.	**Rubric Level 2, Level of Complexity 3** Student can read, write, model, and compare whole numbers using >, <, and =, order numbers up to 9999, and classify numbers up to 9999 as odd and even.
	Grade 4 Student can read, compare, order, classify, and explain whole numbers up to one million.	**Rubric Level 2, Level of Complexity 4** Student can read, compare, order, classify, and explain whole numbers up to one million.
	Grade 5 Read, compare, order, use, and represent simple fractions (halves, fourths, fifths, and tenths with all numerators) and decimals to hundredths.	**Rubric Level 3, Level of Complexity 1** Read, compare, order, use, and represent simple fractions (halves, fourths, fifths, and tenths with all numerators) and decimals to hundredths.
	Grade 6 Read, compare, order, use and represent fractions, (halves, thirds, fourths, fifths, sixths, eighths, and tenths with all numerators); and compare, order, use and represent decimals to thousandths and convert between decimals and percentages.	**Rubric Level 3, Level of Complexity 2** Read, compare, order, use and represent fractions, (halves, thirds, fourths, fifths, sixths, eighths, and tenths with all numerators); and compare, order, use and represent decimals to thousandths and convert between decimals and percentages.
	Grade 7 Read, **c**ompare, order, use, and represent fractions, decimals, and percents and convert among different numeral forms (limited to terminating decimals for decimal to fraction conversion) and apply concepts of integers, absolute value, and positive exponents.	**Rubric Level 3, Level of Complexity 3** Read, **c**ompare, order, use, and represent fractions, decimals, and percents and convert among different numeral forms (limited to terminating decimals for decimal to fraction conversion) and apply concepts of integers, absolute value, and positive exponents.
	Grade 8 Use numbers in a variety of equivalent and interchangeable forms (e.g., integer, fraction, decimal, percent, exponential, and scientific notation) in problem-solving.	**Rubric Level 3, Level of Complexity 4** Use numbers in a variety of equivalent and interchangeable forms (e.g., integer, fraction, decimal, percent, exponential, and scientific notation) in problem-solving.

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Mathematics/B Computation B1, B1	**Grade 3** Student can solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 9999.	**Rubric Level 2, Level of Complexity 3** Student can solve single and multi-step, real-life problems using addition and subtraction with whole numbers with no number greater than 9999.
	Grade 4 Student can solve multi-step, real-life problems using the four operations with whole numbers.	**Rubric Level 2, Level of Complexity 4** Student can solve multi-step, real-life problems using the four operations with whole numbers.
	Grade 5 Student can compute and model all four operations on whole numbers (1-digit divisor, 3-digit dividend) and addition and subtraction with simple fractions with common denominators and decimals to hundredths and do straight computation with these numbers and operations.	**Rubric Level 3, Level of Complexity 1** Student can compute and model all four operations on whole numbers (1-digit divisor, 3-digit dividend) and addition and subtraction with simple fractions with common denominators and decimals to hundredths and do straight computation with these numbers and operations.
	Grade 6 Student can **c**ompute and model all four operations with whole numbers, common fractions and decimals to thousandths, and do straight computation with these numbers and operations. Division limited to 2-digit whole number divisors and 3-digit dividends.	**Rubric Level 3, Level of Complexity 2** Student can **c**ompute and model all four operations with whole numbers, common fractions and decimals to thousandths, and do straight computation with these numbers and operations. Division limited to 2-digit whole number divisors and 3-digit dividends.
	Grade 7 Student can compute and model all four operations with whole numbers, fractions (including mixed numerals), decimals, and percents applying order of operations and do straight computation with these numbers and operations.	**Rubric Level 3, Level of Complexity 3** Student can compute and model all four operations with whole numbers, fractions (including mixed numerals), decimals, and percents applying order of operations and do straight computation with these numbers and operations.
	Grade 8 Student can compute and model all four operations with whole numbers, fractions, decimals, sets of numbers and percents, applying the proper order of operations. Note: Includes positive and negative numbers.	**Rubric Level 3, Level of Complexity 4** Student can compute and model all four operations with whole numbers, fractions, decimals, sets of numbers and percents, applying the proper order of operations. Note: Includes positive and negative numbers.

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Mathematics/D Probability D2, D1	**Grade 3** Student can recognize and describe the likelihood of the occurrence of an event using “always”, “impossible”, “likely”, “not likely”, or “equally likely”.	**Rubric Level 2, Level of Complexity 3** Student can recognize and describe the likelihood of the occurrence of an event using “always”, “impossible”, “likely”, “not likely”, or “equally likely”.
	Grade 4 Student can estimate probability from a sample of observed outcomes and simulations.	**Rubric Level 2, Level of Complexity 4** Student can estimate probability from a sample of observed outcomes and simulations.
	Grade 5 Student can find the probabilities of simple events and represent them as fractions (1/2, 1/3, 2/3, 1/4, 2/4, 3/4 eligible).	**Rubric Level 3, Level of Complexity 1** Student can find the probabilities of simple events and represent them as fractions (1/2, 1/3, 2/3, 1/4, 2/4, 3/4 eligible).
	Grade 6 Student can find the probabilities of simple events and represent them as fractions (simplest form not needed).	**Rubric Level 3, Level of Complexity 2** Student can find the probabilities of simple events and represent them as fractions (simplest form not needed).
	Grade 7 Student can **f**ind the probability of simple events and express the probability as a fraction or a percentage (percentages limited to multiples of 10% and 25%).	**Rubric Level 3, Level of Complexity 3** Student can **f**ind the probability of simple events and express the probability as a fraction or a percentage (percentages limited to multiples of 10% and 25%).
	Grade 8 Student can find the probability of simple events and make predictions by applying the theories of probability.	**Rubric Level 3, Level of Complexity 4** Student can find the probability of simple events and make predictions by applying the theories of probability.

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Mathematics/E Geometry E1, E1	**Grade 3** Student can use properties/attributes (limited to number of sides and number of angles) to identify, describe and distinguish between triangles and rectangles, and lengths of sides to identify squares as special rectangles.	**Rubric Level 2, Level of Complexity 3** Student can use properties/attributes (limited to number of sides and number of angles) to identify, describe and distinguish between triangles and rectangles, and lengths of sides to identify squares as special rectangles.
	Grade 4 Student can describe, model, and classify shapes and figures using applicable properties.	**Rubric Level 2, Level of Complexity 4** Student can describe, model, and classify shapes and figures using applicable properties.
	Grade 5 Student can use properties/attributes (limited to number of sides, number of angles, length of sides, and lines of symmetry) to classify polygons and draw two-dimensional shapes.	**Rubric Level 3, Level of Complexity 1** Student can use properties/attributes (limited to number of sides, number of angles, length of sides, and lines of symmetry) to classify polygons and draw two-dimensional shapes.
	Grade 6 Student can use properties/attributes (limited to number of sides, number of angles, length of sides, lines of symmetry, parallel sides, perpendicular sides, and angles relative to 90^{o}) to classify polygons; and to compare and classify rectangular prisms, including cubes; and triangular prisms and draw two-dimensional shapes.	**Rubric Level 3, Level of Complexity 2** Student can use properties/attributes (limited to number of sides, number of angles, length of sides, lines of symmetry, parallel sides, perpendicular sides, and angles relative to 90^{o}) to classify polygons; and to compare and classify rectangular prisms, including cubes; and triangular prisms and draw two-dimensional shapes.
	Grade 7 Student can use properties/attributes (limited to number of vertices, number of edges, number of faces, shapes of faces, and types of angles) to identify and distinguish among three-dimensional figures and draw two-dimensional shapes and three-dimensional figures.	**Rubric Level 3, Level of Complexity 3** Student can use properties/attributes (limited to number of vertices, number of edges, number of faces, shapes of faces, and types of angles) to identify and distinguish among three-dimensional figures and draw two-dimensional shapes and three-dimensional figures.
	Grade 8 Student can compare, classify, and draw two-dimensional shapes and three-dimensional figures.	**Rubric Level 3, Level of Complexity 4** Student can compare, classify, and draw two-dimensional shapes and three-dimensional figures.

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Mathematics/E Measurement F1, F1	**Grade 3** Student can solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole centimeter.	**Rubric Level 2, Level of Complexity 3** Student can solve and justify solutions to real-life problems involving the measurement of time, length, and temperature including using a ruler to measure length to the nearest inch and whole centimeter.
	Grade 4 Student can solve and justify solutions to real-life problems involving the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, and volume.	**Rubric Level 2, Level of Complexity 4** Student can solve and justify solutions to real-life problems involving the measurement of time, length, area, perimeter, weight, temperature, mass, capacity, and volume.
	Grade 5 Student can use ruler to measure length to the nearest quarter inch and centimeter.	**Rubric Level 3, Level of Complexity 1** Student can use ruler to measure length to the nearest quarter inch and centimeter. (Has been combined with F2)
	Grade 6 Student can perform conversions between inches, feet, and yards; seconds, minutes, and hours; pounds and ounces; and cups, pints, quarts, and gallons.	**Rubric Level 3, Level of Complexity 2** Student can perform conversions between inches, feet, and yards; seconds, minutes, and hours; pounds and ounces; and cups, pints, quarts, and gallons.
	Grade 7 Student can perform conversions between pairs within the following groups: inches, feet, yards, and miles; millimeters, centimeters, meters, and kilometers; cups, pints, quarts, and gallons; milliliters and liters; ounces, pounds and tons; grams and kilograms; seconds, minutes, hours, days, weeks, months, and years.	**Rubric Level 3, Level of Complexity 3** Student can perform conversions between pairs within the following groups: inches, feet, yards, and miles; millimeters, centimeters, meters, and kilometers; cups, pints, quarts, and gallons; milliliters and liters; ounces, pounds and tons; grams and kilograms; seconds, minutes, hours, days, weeks, months, and years.
	Grade 8 Student can demonstrate the structure and use of systems of measurement.	**Rubric Level 3, Level of Complexity 4** Student can demonstrate the structure and use of systems of measurement.

Content Area/Content Standard	MEA Grade Level Expectation	Personalized Alternate Assessment Portfolio (PAAP) Rubrics
Mathematics/E Measurement F2, F2	**Grade 3** Student can select appropriate tools and units to measure length, time, and temperature.	**Rubric Level 2, Level of Complexity 3** Student can select appropriate tools and units to measure length, time, and temperature.
	Grade 4 Student can select measuring tools and units of measurement that are appropriate for what is being measured.	**Rubric Level 2, Level of Complexity 4** Student can select measuring tools and units of measurement that are appropriate for what is being measured.
	Grade 5 Student can solve problems involving direct measures of length, distance, elapsed time, temperature, capacity, mass, and weight with measures limited to whole numbers (quarters for lengths), including using a ruler to measure length to the nearest quarter inch and whole centimeter.	**Rubric Level 3, Level of Complexity 1** Student can solve problems involving direct measures of length, distance, elapsed time, temperature, capacity, mass, and weight with measures limited to whole numbers (quarters for lengths), including using a ruler to measure length to the nearest quarter inch and whole centimeter.
	Grade 6 Student can solve problems involving direct measures of length, distance, elapsed time, temperature, capacity, mass, and weight.	**Rubric Level 3, Level of Complexity 2** Student can solve problems involving direct measures of length, distance, elapsed time, temperature, capacity, mass, and weight.
	Grade 7 Student can solve problems involving unit price, speed, and direct measures.	**Rubric Level 3, Level of Complexity 3** Student can solve problems involving unit price, speed, and direct measures.
	Grade 8 Student can develop and use concepts that can be measured directly or indirectly (e.g., the concept of rate).	**Rubric Level 3, Level of Complexity 4** Student can develop and use concepts that can be measured directly or indirectly (e.g., the concept of rate).

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Mathematics/G Patterns G1, G1	**Grade 3** Student can determine the next term or missing terms in patterns with numbers or shapes.	**Rubric Level 2, Level of Complexity 3** Student can determine the next term or missing terms in patterns with numbers or shapes.
	Grade 4 Student can use the patterns of numbers, geometry, and a variety of graphs to solve a problem.	**Rubric Level 2, Level of Complexity 4** Student can use the patterns of numbers, geometry, and a variety of graphs to solve a problem.
	Grade 5 Student can translate real-life situations into addition, subtraction, multiplication, or division sentences.	**Rubric Level 3, Level of Complexity 1** Student can translate real-life situations into addition, subtraction, multiplication, or division sentences.
	Grade 6 Student can translate real-life situations into addition, subtraction, multiplication, and division sentences with whole numbers (mix of operations included).	**Rubric Level 3, Level of Complexity 2** Student can translate real-life situations into addition, subtraction, multiplication, and division sentences with whole numbers (mix of operations included).
	Grade 7 Student can translate real-life linear situations into equations (limited to one step).	**Rubric Level 3, Level of Complexity 3** Student can translate real-life linear situations into equations (limited to one step).
	Grade 8 Student can describe and represent relationships with tables, graphs, and equations.	**Rubric Level 3, Level of Complexity 4** Student can describe and represent relationships with tables, graphs, and equations.

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Mathematics/H Algebra Concepts H2, H6	**Grade 3** Student can solve for a missing number or find the replacement for a symbol in addition and subtraction sentences using whole numbers.	**Rubric Level 2, Level of Complexity 3** Student can solve for a missing number or find the replacement for a symbol in addition and subtraction sentences using whole numbers.
	Grade 4 Student can find replacements for variables that make simple number sentences true.	**Rubric Level 2, Level of Complexity 4** Student can find replacements for variables that make simple number sentences true.
	Grade 5 Student can solve one-step equations using addition, subtraction, or multiplication with a variable. Values for variables are limited to whole numbers.	**Rubric Level 3, Level of Complexity 1** Student can solve one-step equations using addition, subtraction, or multiplication with a variable. Values for variables are limited to whole numbers.
	Grade 6 Student can solve one-step equations using whole numbers with all four operations.	**Rubric Level 3, Level of Complexity 2** Student can solve one-step equations using whole numbers with all four operations.
	Grade 7 Student can solve two-step equations using integers and positive rational numbers.	**Rubric Level 3, Level of Complexity 3** Student can solve two-step equations using integers and positive rational numbers.
	Grade 8 Student can find solutions for unknown quantities in linear equations and in simple equations and inequalities.	**Rubric Level 3, Level of Complexity 4** Student can find solutions for unknown quantities in linear equations and in simple equations and inequalities.

Content Area/Content Standard	MEA Grade Level Expectation	Personalized Alternate Assessment Portfolio (PAAP) Rubrics
Mathematics/K Communication K1, K2	**Grade 3** Student can complete tables, bar graphs, and pictographs.	**Rubric Level 2, Level of Complexity 3** Student can complete tables, bar graphs, and pictographs.
	Grade 4 Student can use simple tables and graphs to communicate ideas and information in a concise and clear manner.	**Rubric Level 2, Level of Complexity 4** Student can use simple tables and graphs to communicate ideas and information in a concise and clear manner.
	Grade 5 Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include frequency distributions, tables, line plots, histograms, or bar graphs and pie charts/circle graphs (read only).	**Rubric Level 3, Level of Complexity 1** Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include frequency distributions, tables, line plots, histograms, or bar graphs and pie charts/circle graphs (read only).
	Grade 6 Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include frequency distributions, tables, line plots, histograms, or bar graphs and pie charts/circle graphs (read only).	**Rubric Level 3, Level of Complexity 2** Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include frequency distributions, tables, line plots, histograms, or bar graphs and pie charts/circle graphs (read only).
	Grade 7 Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include lists, tables, frequency distributions, line plots, bar graphs, stem and leaf plots or 1st quadrant scatter plots, and line graphs and pie charts/circle graphs (read only).	**Rubric Level 3, Level of Complexity 3** Student can read and use statistics, tables, and graphs to communicate ideas and information. Data displays include lists, tables, frequency distributions, line plots, bar graphs, stem and leaf plots or 1st quadrant scatter plots, and line graphs and pie charts/circle graphs (read only).
	Grade 8 Student can use statistics, tables, and graphs to communicate ideas and information in convincing presentations and analyze presentations of others for bias or deceptive presentation.	**Rubric Level 3, Level of Complexity 4** Student can use statistics, tables, and graphs to communicate ideas and information in convincing presentations and analyze presentations of others for bias or deceptive presentation.